

## CLAIMS

### What is claimed is:

1. An optical system including a steered beam, comprising:  
5 a source of a light beam;  
a device which receives the light beam and steers it to form the steered beam;  
a target of the steered beam; and  
a semi-transparent sensor having an output signal indicative of a deviation of the  
steered beam from the target.
- 10 2. The system of claim 1, further comprising:  
a portion of the sensor overlying the target.
3. The system of claim 2, the source of the light beam further comprising:  
15 a pilot signal source, whereby the light beam has an information carrying portion  
and a pilot portion.
4. The system of claim 3, wherein the pilot portion of the signal is carried on a first  
wavelength and the information-carrying portion of the signal is carried on a second  
20 wavelength, and wherein the sensor further comprises:  
a sensor film that is more transparent at the second wavelength than at the first  
wavelength, and that is more sensitive to the first wavelength than the second  
wavelength.
- 25 5. The system of claim 2, further comprising:  
a second sensor overlying the first sensor, whereby both position and direction of  
the beam are measured.
6. The system of claim 2, further comprising:  
30 an optical switching element through which the beam passes, wherein the target  
is one of plural targets within the optical switching element.

7. A method of performing real-time control of an optical switch, comprising:  
steering an optical beam onto a target within the switch;  
measuring a deviation of the optical beam from a nominal center of the target,  
while the optical beam is on the target; and  
5 correcting the direction of the optical beam to the nominal center of the target.
8. The method of claim 7, further comprising:  
combining an information signal with a pilot signal to form the optical beam.
- 10 9. The method of claim 8, further comprising:  
modulating the pilot signal to distinguish it from the information signal.
10. The method of claim 8, further comprising:  
emitting the pilot signal at a different frequency than the information signal to  
15 distinguish it from the information signal.
11. The method of claim 8, including a first optical beam and a second optical beam,  
further comprising:  
distinguishing the first optical beam from the second optical beam by modulating  
20 a first pilot signal differently than a second pilot beam modulated on the second optical  
beam.
12. The method of claim 7, further comprising:  
detecting when the optical beam leaves the target center.
- 25 13. The method of claim 7, further comprising:  
measuring a position of the optical beam as a continuous signal.